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CANINE RABIES VACCINATION

Rabies will remain widespread over the United States until control work is coordinated on a National basis under a single agency according to Harald N. Johnson, M.D., Director of the Rabies Laboratory, Alabama State Board of Health, Montgomery, as reported in the October 2d issue of New York State Health Department's "Health News." Such control work, in his opinion, must of necessity be conducted by the veterinary profession, the success of the program being dependent on prompt reporting by veterinarians of all suspected cases of animal rabies and adequate facilities for collecting ownerless dogs.

Speaking at the 1944 Annual Conference of Health Officers and Public Health Nurses in Saratoga Springs,¹ Doctor Johnson presented field reports of canine rabies vaccination together with results of experimental studies of the single injection method of vaccination.² He also cited examples of how compulsory vaccination and collection of unvaccinated dogs, under the Alabama Dog Control Act of 1937 has brought about suppression of rabies without quarantine. This law requires that all dog owners must have their dogs vaccinated annually with a rabies vaccine approved by the State Health Officer and the State Veterinarian, except for animals kept constantly confined. It also provides for the impounding of unvaccinated dogs running at large and confinement of dogs suspected of having rabies. Enforcement of the law is delegated to rabies inspectors who are appointed annually by each county board of health and who are vested with full police power.

¹ Presented also at a meeting of the United States Live Stock Sanitary Association and published in the Proceedings of that Association, December 2, 1943.

² The studies and observations reported by Doctor Johnson were conducted with the support and under the auspices of the International Health Division of the Rockefeller Foundation and the Alabama State Board of Health.

Vaccination Failures Under Experimental Conditions

Doctor Johnson said that it is easy to understand the criticism which has been leveled at canine rabies vaccination. Several reputable investigators have reported that rabies vaccine failed to protect animals from developing the disease under experimental conditions. He attributed their negative results to the fact that in order to secure a uniform and significant fatality for the small number of control animals used, they have usually resorted to unnatural routes of inoculation, namely, cisternal, intracerebral or intraocular, which tend to obscure the role played by immunity acquired through vaccination. Furthermore, when the test inoculation was given intramuscularly, young animals were used with a view to obtaining high mortality for the controls. He added that in his experience, most vaccination failures occurred in young dogs from four to six months of age. Similarly, mice over six weeks of age are more readily immunized than those under four weeks of age. He emphasized the importance of using fairly mature animals in vaccine potency test studies and added that in order to obtain significant results it is necessary to use large groups of animals.

It is reasonable, Doctor Johnson continued, to expect more consistent protection for vaccinated dogs exposed to rabies under natural conditions than where large doses of rabies virus are injected into muscle tissue. It is difficult to infect dogs with rabies by puncture and abrasion of the skin with instruments dipped in a 10 per cent suspension of salivary gland virus of high titer. The case fatality rate for a group of 29 dogs exposed by this method was only 15 per cent. Where the exposure involves muscle tissue, the fatality rate is much higher.

In the absence of asymptomatic carriers, it is not necessary to obtain 100 per cent herd resistance in order to eradicate a disease. Not all rabid dogs have the virus in the salivary glands; others develop paralytic rabies and do not bite. A considerable number of mature dogs also have a natural resistance to infection. Therefore, if the general herd resistance is materially increased by vaccination, the chain of infection will soon be broken.

Control Measures

Doctor Johnson expressed the view that canine rabies will continue to be prevalent throughout the country until control activities are coordinated nationally under a single authority. The relative freedom of transport of dogs from one community to another is the main reason for the continual development of new foci of rabies. Where rabies is present, the public must be informed about the disease and the necessary control procedures through radio programs, newspaper articles, and pamphlets giving the salient information about the disease. Rabies in animals should be made a reportable disease, in his opinion, so that the State Veterinarian may be notified immediately of new foci of the disease. Control work could then be started before the disease has time to spread.

Doctor Johnson added that if canine rabies vaccination is to be effective in the field, it must be under the supervision of qualified veterinarians. The prescribed dosage must be given and the vaccine should be massaged into the subcutaneous tissue, the dose to be divided and injected into two different areas. He warned that rabies vaccine must be kept in a refrigerator when not in use; otherwise it will lose its potency.

It is evident that vaccination will not eliminate rabies unless a constantly functioning program of picking up unvaccinated dogs found on the street is maintained. Doctor Johnson suggested two methods of financing this type of program: one, to license all dogs and use the revenue for maintaining a dog pound and the necessary personnel and equipment; the other, to make the vaccination fee high enough to cover both the cost of vaccination and other dog control activities. The latter has been found more practical in Alabama as the dog owner pays only one fee, the vaccination tag differentiates the dog from ownerless strays, and the fee is large enough to make it worth while for the veterinarian to assume the other control activities of a rabies inspector.

Evil is a fact not to be explained away but to be accepted; and accepted not to be endured, but conquered. It is a challenge neither to our reason nor to our patience, but to our courage.—John Haynes Holmes.

X-RAY EXPOSURE IN TUBE MANUFACTURE

It has been discovered that in normal manufacturing procedures in plants producing high vacuum electronic tubes, the operators are subject to X-ray exposure. At certain stages of the process of manufacturing and testing, X-radiation exposure in the operator's zone was several times the provisional tolerance dose of 0.1 roentgens per day. While the exposed workers gave no evidence of ill effect, these exposures must be considered definitely dangerous. Exposure of this sort is insidious in its effect and serious damage is likely to result before the exposed worker is aware of any health hazard.

Industrial radiographic units in other plants were studied. These units are installed for the purpose of facilitating the inspection of metallic parts. High potentials are used so that if adequate protection is not afforded, the operators are subjected to extremely dangerous exposures of X-rays, mainly from scatter radiation.

Recommendations involve enclosing the tubes or coating the control booths with sheet lead. When this was done, the hazard from X-ray exposure was placed under adequate control.

SULPHUR DIOXIDE IN DRIED FRUIT PROCESSING

From time immemorial, in packing plants where dried peaches and apricots are treated with sulphur dioxide gas, it has been customary to generate the gas by burning solid sulphur in shallow trays on the floors of treatment rooms. For every cubic foot of sulphur dioxide gas generated, one cubic foot of oxygen is needed which must be supplied from the air. Since the percentage of oxygen in the air can not be reduced more than a small percentage, the burning of sulphur in this manner results in a continuous discharge throughout the burning period of a large quantity of highly contaminated air, resulting in possibilities of dangerous exposure of workmen within the plant, and the frequent occurrence of nuisances in surrounding areas. It has been suggested that the greatest promise of success in the control of this hazard lies in the replacement of this sulphur burning method of generation of sulphur dioxide gas with the injection of such gas from pressure cylinders directly into tightly sealed spaces in accordance with normal fumigation practice where other gaseous fumigants are used. If the application of this procedure proves successful in a plant where it is being tried, it is likely that it will be followed generally wherever sulphur dioxide treatment is performed in urban areas.

EARLY PUBLIC HEALTH IN CALIFORNIA

(CONTINUED FROM OUR LAST ISSUE)

By GUY P. JONES

THE BEGINNINGS OF PUBLIC HEALTH

Public health in California began with the arrival in San Francisco in January of 1850 of a 75-ton schooner, storm-tossed and weather-beaten, whose splintered masts joined the forest of masts that grew like magic beginning with the Gold Rush. Every type of sailing vessel imaginable was represented in the San Francisco harbor: Chinese junks, clipper ships and full-rigged vessels carrying almost every flag. The world was moving to partake of the riotous feast of gold in the California Eldorado. This little schooner had spent many weary months in its voyage from the Atlantic Coast. Unfit to contend with the heavy seas, four months were required to double the Cape. The deck was constantly awash, food was wet and moldy, sailors worked in wet clothes, and even the small stock of medicines aboard were ruined by water. Strange to relate, no cases of illness, with the exception of chil-blains, developed in anyone aboard ship. Freedom from scurvy is attributed to the fact that the schooner had put in at the Island of St. Catherine, off the coast of Brazil, where a large stock of potatoes, poultry, pigs, vegetables and pure water had been taken on.

Dr. Thomas Muldrup Logan, 42 years old, a graduate of Charleston College and the Medical College of South Carolina, was a passenger and medical officer on this tiny vessel. When he stepped ashore in San Francisco, public health had its beginning in this State. Shortly after his arrival Dr. Logan became physician for the Stranger's Friend Society. He was lonely, cold, miserable, wet and disillusioned. The mud, in crossing the streets, reached almost to his knees, necessitating the wearing of high boots. He became ill, and in April of the same year, after spending a bare four months in San Francisco, he made a trip through the gold fields, stopping at Sacramento on the way, where he found that mining camp inundated by the muddy waters of the Sacramento. After visiting the northern mines on the Feather and Yolo Rivers and those of the Mother Lode district, chiefly in the vicinity of Hangtown, now Placerville, he returned to Sacramento in August of 1850 where he remained until his death in 1876.

DR. LOGAN STARTS PRACTICE

Immediately after his arrival in Sacramento he opened a small hospital on the outskirts of the mining camp. Bringing with him instruments for measuring temperature, precipitation and humidity, he made daily observations of the weather. These were re-

corded faithfully each day and later became part of the official records of the United States Weather Bureau when that organization was established in 1870.

In writing to his colleague, Dr. C. D. Fenner of New Orleans, on October 29, 1850, Dr. Logan had the following to state relative to the status of the medical profession in California at that time: "I am sorry to inform you that, like many articles of merchandise with which our country has been flooded, we physicians are at a most ruinous discount and that the ancient and time honored doctorate is, in most cases, held in so low repute that many a worthy physician studiously conceals his title. I have seen M.D.'s driving ox teams through our highways, laboring on our streets like good fellows, serving at barrooms, monte tables, boarding houses and so forth, and digging and delving among rocks and stones to gather together their allotment of California's produce, the precious gold. Labor, however, is honorable to man and it is not because some are obliged to put their shoulder to the wheel that the profession is rated at so low a standard. It is because many, and among them those who assume without any moral or legal right the title of doctor, in their grasping cupidity and impatience to amass in the shortest possible time their 'pile' have, while taking advantage of the necessities of their sick and dependent creatures, drained the poor miner of all his hard earned dust, be it more or less for a few professional visits. These instances of medical rapacity have become so numerous and aggravated as to create a distrust on the part of the community towards the profession generally and to bring odium on its practitioners. Hundreds who were able to pay a reasonable fee would rather perish than lose all their means of support in satisfying the exorbitant demands of the physician. I do not suppose that at any part of the civilized world such enormous fees were ever charged and collected as I herewith insert as worthy of preservation among the curiosities of medicine. A few of the items copied from the recent fee bill of the Medical Society of San Francisco, which professes to be reduced down to the present less inflated condition of monetary affairs. For a single visit, or advice in a case in which no further visits are required, \$32. For each visit on a case in which the physician is in regular attendance, or for advice at his office, \$16. When detained, for each hour \$32. For a written opinion or advice to a patient, \$50 to \$100. For a visit at night, \$30 to \$50. For a visit as consulting physician during the night, \$100. For vaccination,

\$32. For a post-mortem in a case of legal investigation, \$200. For a case of labor or accouchement, \$200. For the operation of turning accouchement, \$500. For the operation of cataract, \$1,000. For trephining, \$1,000. For the operation of strangulated hernia, \$1,000."

COMMENTS ON ASIATIC CHOLERA

In his letter to Dr. Fenner, Dr. Logan stated that he had passed two rainy and two dry months in San Francisco, had traveled during one month of spring and two months of summer among the northern mines and had resided nearly three months of summer and fall in Sacramento City, "where I am actively engaged in the practice of my profession, and during all this period I can conscientiously say that I have not passed one perfectly well or pleasant day. In San Francisco, during the rainy season, the streets are one perfect quagmire and there is no getting through them without wearing the stoutest kind of boots that reach up above the knees and which are worn, ex-necessitate, outside of the pantaloons, and rain, catarrhs, pneumonias, diarrheas, and dust." He stated further that the topography of San Francisco was much like New Orleans, mornings and evenings chilly and uncomfortable. On June 30th he was at Coloma, where the temperature was 105° in the shade. He stated, "I left San Francisco in April, as my health was breaking down, in order to recruit exhausted energies by another excursion among the mining regions, and subsequently settled here in Sacramento last August." He called the attention of Dr. Fenner to the fact that "diarrhea is the disease of California. If, philosophically speaking, what is commonly called diarrhea is really a symptom of different pathological states, the scientific physician often finds it extremely difficult to decide upon the true nature and seat of the disease. The annals of the early missionaries show that many persons fell victims to a deadly disease closely resembling cholera every autumn. Still earlier, in the Fall of 1535, Cortez states that so great a mortality prevailed that he and his companions who lived to escape, fled from the land for safety. In corroboration of this historical fact, the old settlers and Californians affirm that there has always prevailed a fatal sickness during the Fall and several of the physicians who were here last autumn say that a disease similar to the recent epidemic had then occurred. The mortality of Fort Sutter after the conquest of the country was such that nearly the whole garrison was carried off. Thus it appeared that long before cholera was heard of a disease existed in this quarter of the globe equally as fatal and alarming; and that, subsequently, without its having excited as much attention and alarm as the name of cholera occa-

sions, symptoms strongly resembling the present epidemic had been observed to form what was supposed to be the initiatory and often fatal stage of malignant congestive fever." In concluding this letter Dr. Logan said that he had come to a land where he had been led to expect an Italian elate, an Archipelargian salubrity and Eldorado harvests. His disappointment was great. He stated, "I am, nevertheless, grateful for the share of prosperity, though far below my inflated expectations, and the degree of health, imperfect as it has been, of which I have been the participant."

FIRST CHOLERA PATIENT ON LEVEE

At about the time this letter was written an immigrant, who had come to California by the overland route, staggered into Dr. Logan's hospital unable to proceed farther. The doctor made a diagnosis of Asiatic cholera and kept the patient in his care. On the following day, October 19th, a passenger who had just arrived in Sacramento on a sailing vessel from Panama, collapsed on the levee and died within a few hours. Other cases occurred with great rapidity. By this time, an official called "health officer" had been established in Sacramento. He received a salary of \$400 a month but his chief and only duty seems to have been the provision of medical care to the scurvy-ridden stragglers who arrived in Sacramento by mountain trail and via water. At first Dr. Spaulding refused to recognize cases that were occurring as those of Asiatic cholera. The diagnosis was given as cholera morbus.

It is interesting to note that when these first cases of Asiatic cholera appeared in Sacramento, the news of the admission of California to the Union had arrived by the same boat as the first cholera patients. Although California had been admitted to the Union on September 9, 1850, the word did not reach Sacramento until October 19th. Bonfires were built on the levee in celebration of the admission. From the cupola of a wooden hotel three stories high, long cloth streamers were stretched to the street. Auctioneers, as merchants of that day were known, opened bottles of champagne freely and the celebration was carried on all night long. On the same vessel newspapers were brought from the Atlantic seaboard on which the headlines read, "Queen Victoria Has Another Baby."

In these wild scenes, with red-shirted miners dancing around bonfires reflected in the muddy waters of the Sacramento, one of the most intensive outbreaks of Asiatic cholera in history had its beginnings. While the shouting and revelry was carried on, the first cases of this disastrous and rapidly fatal disease were appearing. After consulting with the medical men of Sacramento, Dr. Spaulding was forced to admit the presence of Asiatic cholera. Asiatic cholera had occurred in

1849 in New Orleans and other southern States. There would seem to be no question, but that it was dragged across the continent by the immigrant trains and at the same time the disease was brought into the State by passengers on ships from Panama. It has been stated that the massacres of immigrants in the wagon trains by Indians was caused by the fact that many Indians died of cholera after drinking water from wayside sources where immigrant trains had stopped. The Indians attributed the cases of illness and deaths among them to evil magic perpetrated by white men on the immigrant trains.

CHOLERA CAME BY LAND AND SEA

There is ample evidence to indicate that the disease came to Sacramento by both land and sea. Its coming was anticipated and the *Sacramento Transcript* and the *Placer Times* published many articles and editorials forewarning against the disease. An editorial in the *Placer Times* for May 1, 1850, stated under the title, "The Season and the Health of the City," "There will exist during the coming season reasons and causes of the recurrence of some of the sickness from last season. A greater immigration is anticipated over the plains, which will reach here, as before, during the burning heat of summer, and there must again be much suffering, many to die on the road and more to be sick when they arrive. The same crowds, too, that thronged every conveyance by sea last year will be repeated again, notwithstanding the great multiplication of routes and facilities. Late accounts from the states show that the cholera was still among them. The geological character of our country causes us to hope we may escape but, while no picture can paint or pen portray the ravages of this scourge, should it appear here our only real safety and defense is to be found in the provident determination to remove all causes that may engender it or propagate its spread. The physicians of Sacramento City need no commendation. In professional attainments and high personal standing they can be nowhere surpassed. That they will be ever ready to lend their cooperation to every enterprise connected with the honor and dignity of their calling cannot be doubted."

ONE THOUSAND DIED IN THREE WEEKS

Within a period of three weeks there were probably no less than one thousand deaths from cholera in Sacramento. The Federal census had just been taken, showing a population of 6,500. It is estimated that fully half of the residents of the community fled, leaving only those who were unable to get away. Dr. J. B. D. Stillman in his book, "In Search of the Golden Fleece," states that the City Cemetery, after the chol-

era epidemic, looked like a newly plowed field. There was no time to prepare bodies for burial, nor were there enough coffins on hand in which to place the bodies. Men were wrapped in their blankets and buried in the sand without ceremony. All of the victims of this truly terrible disease were young men who had come to California full of anticipation and hope, full of the spirit of adventure and the hunger for adventures in a new land. Many of them were dead within eight hours after the onset of the disease. It has been stated that cholera never appeared in more destructive force than in the Sacramento outbreak of 1850. The doctors of Sacramento remained faithfully at their posts although, since the bacteriological cause of the disease was unknown at that time, it was impossible to know the precautions that should be taken against its contraction and spread. Out of 90 doctors in Sacramento at this time, no less than 15 died, among them Dr. Stansbury, who had established a hospital two years before. These were:

H. M. Cobb, Connecticut
R. L. Grisard, Missouri
----- Green, Wisconsin
G. W. Held, Missouri
R. H. Hale, Tennessee
H. F. Hess, Iowa
J. B. Herrick, Illinois
A. Holmes, Indiana
George W. Knobel, Russia
George H. Mason, Kentucky
----- Metcalf
Robert McNamee, New York
----- Stansbury, New Jersey
T. N. P. Whitlock, Illinois
George Yearly, Maryland

A cholera hospital was established in an adobe building in the vicinity of Fort Sutter. It was built originally for livestock but in the emergency it was converted into a hospital. At times, as many as 70 patients were housed in one small room.

Bancroft provides an interesting story of a lad who had arrived in Sacramento in the midst of the outbreak and who, through force of circumstances, became a patient in the cholera hospital, although he did not suffer from cholera.

CHOLERA ON SHIPBOARD

In the midst of the outbreak, a physician from Alabama arrived by an overland trail. He had seen cholera in the southern states in 1849 and recognized the seriousness of the situation in Sacramento. He visited a former colleague and gave active assistance in the management of the outbreak. Nevertheless, he took the first opportunity offered to leave by boat, hav-

ing secured a berth as surgeon on a ship that was about to leave for Panama. He was quite relieved to find himself aboard the vessel, which had swung out into the stream. No sooner had he become settled, however, than he was called to the galley to attend the cook. A diagnosis of cholera was made immediately. He was then called to attend a seaman in whom the same diagnosis was made. Both patients were removed from the vessel by rowboat and the steamer proceeded on its way. Before many hours, dozens of passengers had come down with the disease. Between Sacramento and San Francisco, three stops were required in order to bury the dead. The doctor himself believed that he contracted the disease but recovered. After leaving San Francisco he reported that a few cases of typhoid fever had developed among the passengers but that no other deaths occurred.

Meanwhile, cholera had appeared in San Francisco and San Jose. The outbreaks there were very limited, however, and could not compare in intensity with the Sacramento outbreak. Mayor Hardin Bigelow of San Francisco died of cholera and was buried with public honors November 28, 1850. There were reports of straggling cases in San Jose, some of which were attended by Dr. Townsend, a pioneer physician in that community.

Following is a tabulation of deaths from all causes that occurred in Sacramento during the year 1850. A total of 763 deaths was registered with causes given. For 291 deaths, no cause was stated. Only 349 deaths were attributed to cholera but there were 127 deaths listed as diarrhea, 61 as dysentery, 3 dysentery and fever, 6 fever and diarrhea, 9 inflammation of the bowels, and many other causes of death that might have been cholera.

MOST DEATHS IN YOUNG MEN

Deaths by nativity showed that most of those who died in Sacramento during that year came from Illinois, Maine, Indiana, Massachusetts, Missouri, New York, Ohio, Pennsylvania, Wisconsin, Connecticut and other States. Most of the deaths registered occurred during October when the cholera epidemic was at its height. The cholera epidemic itself lasted from October 19th to November 26th when the last death was reported. The peak of the epidemic occurred on October 3d when 32 deaths were registered. Most of those who died in Sacramento in 1850 were young men between the ages of 15 and 44 years.

It is appropriate here to reprint the article, "Cholera in Sacramento," from Thompson and West's "History of Sacramento County," published in 1880. This report gives Dr. John F. Morse's graphic description of conditions that existed during those troublesome days.

THE CHOLERA IN SACRAMENTO

Its Appearance in October, 1850—Rapid Increase of Mortality—Public Consternation—Twenty Days of Terror—One Hundred and Fifty Cases in a Day—The City Depopulated—Story of a Leading Physician

Thompson and West, *History of Sacramento County, 1880*

The cholera made its first appearance in Sacramento on the twentieth of October, 1850, when an immigrant by sea was found on the levee, in the collapsing stage of the disease. The infection was brought to San Francisco on the same steamer which conveyed the intelligence of California's admission to the Union, and reached Sacramento before the city had recovered from the demoralizing effects of the squatter riots. As usual in such cases, the local papers endeavored to conceal the extent of mortality, and their files of that date give no adequate idea of the fearful scourge. On the twenty-fourth of October, the city physician reported seven cases of cholera to the council, five of which were fatal. Some of the doctors attempted to quiet public apprehension by the opinion that the malady was only a violent form of the cholera morbus, and the *Times* "felt confident that there was very little danger, and had not heard of a single case where the patient had not been previously reduced by diarrhea." On the twenty-seventh, six cases were reported, and the *Times* "hoped that some precautionary measures would be taken," etc. On the twenty-ninth, 12 cases appeared; on the thirtieth, 19, and it was no longer possible to conceal the presence of the ghastly destroyer. A Sacramento correspondent of the *Alta*, November 4th, says: "This city presents an aspect truly terrible. Three of the large gambling resorts have been closed. The streets are deserted, and frequented only by the hearse. Nearly all business is at a standstill. There seems to be a deep sense of expectancy, mingled with fear, pervading all classes. There is an expression of anxiety in every eye, and all sense of pecuniary loss is marked in a greater apprehension of personal danger. The daily mortality is about 60. Many deaths are concealed, and many others are not reported. Deaths during the past week, so far as known, 188."

On the fourteenth of November, the daily mortality had decreased to 12, and on the seventeenth the plague was reported as having entirely disappeared.

EXACT NUMBER OF DEATHS UNKNOWN

The precise number of deaths resulting from cholera can never be known, as many were returned as having died of dysentery, fevers, etc., for the purpose of quieting public apprehension, and no exact records of the event are accessible. The only reliable account extant was written by Dr. John F. Morse, 10 years afterwards, for Colville's Directory. Dr. Morse was one of the most active and humane physicians during the prev-

alence of the calamity, and parts of his narrative are almost too shocking for transcription here; but no one who ever knew that good man will think of calling in question his credibility, now that he, too, has passed away. Having referred to the general rejoicing on the admission of California to the Union, Dr. Morse continues: "But, alas! the exuberance of spirit thus enkindled, the joyous and buoyant feeling thus excited, were but the illusive precedents of one of the most appalling calamities that had ever yet set its seal of distress upon the destiny of the Valley City.

Every successive day brought intelligence from the bay that the newly arrived passengers were still dying with cholera. In the feverish state of mind that existed in the community, there was no hope of escape. This alone, with the direction then given to fears, was sufficient to coerce the disease into a terrific development. It scarcely required an imported case to establish a panic more to be dreaded than its cause. But the first case that occurred was a steerage passenger of the steamer which brought the disease. Early in the morning of the twenty-ninth of October, a person was found on the levee in the collapsing stage of the malady. Medical aid was administered, but the disease had taken too deep a hold of its victim. I saw him at sunrise; he was then expiring from the effects of the disease. The indications presented by his death were not calculated to abridge the depressing fear in the community. The cholera was now indeed in our city, and from mouth to mouth the story was communicated, so improved in all the features of a horrible description, as to darken the city with the very pall of death in a few hours. The next day several fatal cases were reported, and as duly circulated through the magnifying minds of thousands, whose fear of the disease made them the almost certain subjects of it.

ALL CLASSES AFFECTED

In six days from the time of its inception, it was making such progress that regular burials were but slightly attended to, and nursing and attention were not infrequently entirely overlooked. Money could scarcely buy the offices of common kindness, and affections were so neutralized by the conflicting elements of selfishness that but little could be done to arrest the course of the disease. The victims of the malady did not seem to be confined so much to those of intemperate and irregular habits, as had been the case in almost all previous manifestations of the disease. People of the most industrious, careful and regular habits seemed alike vulnerable to the dreadful enemy. In a few days, many of our most substantial citizens were numbered among the victims of the sweeping epidemic. It was reported that 150 cases occurred in a single day;

but such was the confusion and positive delirium of the community that no proper records were made, nor can any accurate data now be found in respect to the epidemic of 1850. As soon as the daily mortality became so great as to keep men constantly employed in carrying away the dead, the citizens began to leave the town in every direction, and in such numbers as to soon diminish the population to not more than one-fifth of its ordinary standard. In this pestilential reign of terror and dismay, the most dreadful abandonments of relatives and friends took place. Those who were willing to forget self and become the visitants of mercy, constituted but a small and meager proportion of the many, who, following the instincts of nature, sought only to preserve themselves. There were a few men, as there always will be, whose warm hearts throbbed with an uncontrollable anxiety to convey relief to the distressed and the dying, and who lingered around the death scenes of the epidemic, so spellbound by sympathy that they endured anything and everything as long as there remained a solitary hope of even palliating the agony of dissolving nature. These men are found by and are known to those who constitute the heroes of epidemics. They consisted of an occasional brother, whose inwrought feelings of fraternity were sustained by a maternal bias that made them as enduring as life. I will mention one name, my motive for which will be readily acknowledged more as the extortion of truth than the result of partisan partiality—that of John Bigler, the present Governor of California. This man, with strong impulses of sympathy, could be seen in every refuge of distress that concealed the miseries of the dying and the destitute. With a lump of gum camphor now in his pocket and anon at his nostrils, he braved every scene of danger that presented, and with his own hands administered relief to his suffering and uncared for fellow beings.

The rapid spreading of the epidemic gave to the physicians of the city no rest, day or night. As might be expected, they were falling like the foremost soldiers of a desperate charge, and ere the cholera had subsided, 17 of their number were deposited in the Sandhill Cemetery of our city. A professional mortality never before known; an inroad of death from which but a fraction more than two in three escaped with life, and not one in three from the disease! And yet, not a single educated physician turned his back upon the city in its distress and threatened destruction.

EPIDEMIC LASTED TWENTY DAYS

This awful calamity lasted in its malignant form only about 20 days; but, by the unsystematic records of the times, the number of deaths can not be ascertained. Besides those who died in the city, many were over-

taken by death in other places, and upon the road, in their desperate efforts to escape by running from the enemy. In the latter part of the epidemic the authorities procured the use of a large frame building on L Street, where the destitute cholera subjects were taken and provided for. The abatement of the disease was much longer than the period of its inception and increase, and commenced just as soon as the frequency of death had familiarized people with the frightful scenes around them, and rendered them less defenseless from a paralyzing fear. By the time the disease had almost disappeared the city was nearly depopulated, and there were not a few who thought the Levee City was dead beyond the possibility of resurrection.

But those who supposed that Sacramento and Sacramentans could be so easily crushed had not learned their character. The very moment that mortality began an obvious retreat from the premises, that moment those who survived their flight returned. Those who abided by the city in its distress, reacted upon the calamities of the town with such an elastic and vigorous energy as to completely transform the appearance of the place in a few days. The confidence of the people in the health of the city was almost immediately restored, and business communications were reopened with the mines under the most encouraging circumstances. For a few weeks a good business was realized, and the broken and beautiful winter that followed imparted a vitality to the town that could not have been anticipated by one who had contemplated its destiny through the gloomy scenes of October."

The present writer, who was one of the hardy-surviving victims of that swift and terrible scourge, can certify that Dr. Morse has not overdrawn the horrors of the situation. What with floods and fires, insurrection and the plague, the very stars seemed to fight against Sacramento in her infancy, and the foundation of her latter prosperity was laid upon the ashes of her pioneers. Before the disastrous visitation of the cholera, Dr. Stillman walked through the Sandhill Cemetery and counted 800 graves that had not yet been sodded over, and how many more were added by the still more terrible destroyer is not found recorded in the history of the time. Of a company of 40 men who came out from New Haven on the infected schooner Montague, more than half died after her arrival, and after her departure from Sacramento for Panama, the captain, second mate and six passengers died of cholera before leaving San Francisco Bay.

(To be continued in next, and succeeding issues)



MORBIDITY REPORT—NOVEMBER, 1944

Reportable diseases	Week ending						Total cases	5-yr. median	Total cases
	11-4	11-11	11-18	11-25	12-2	Nov.			
Amebiasis (Amoebic Dysentery)...	1	4	2	1	3	11			88
Anthrax									10
Botulism									284
Chancroid	5	11	2	6		24			
Chickenpox (Varicella)...	351	432	569	437	675	2,464	1,774	32,596	
Cholera, Asiatic									
Coccidioidal granuloma	1					1			29
Conjunctivitis—acute infectious of the newborn (Ophthalmia Neonatorum)...									36
Dengue									
Diphtheria	27	21	29	31	42	150	112	1,103	
Dysentery, bacillary	22	9	15	7	10	63		445	
Encephalitis, infectious				1	1	1		74	
Diarrhea of the newborn	1	28	1	2		32			60
Epilepsy	27	28	27	33	51	166		1,441	
Food poisoning	18	3	4		24	49		591	
German measles (Rubella)	56	47	112	48	60	323		14,582	
Glanders									
Gonococcus infection	487	415	449	357	390	2,098	1,458	18,623	
Granuloma inguinale	1					1			21
Influenza, epidemic	21	11	25	16	24	97	134	11,052	
Jaundice, infectious	4	10	3	4	7	28		307	
Leprosy	1				1	2			9
Lymphogranuloma venereum (lymphogranuloma inguinale)...	5	6	4	3	3	21			218
Malaria	3	3	3	1	3	13	5	122	
Measles (Rubella)...	211	151	166	139	370	1,037	268	67,531	
Meningitis, meningococcic	12	10	16	6	11	55	7	938	
Mumps (Parotitis)	373	451	493	406	584	2,307	1,270	30,119	
Paratyphoid fever, A and B	1	1			1	3			48
Plague									1
Pneumonia, infectious	68	44	53	58	79	302	214	3,868	
Poliomyelitis, acute anterior	24	2	13	10	8	57	59	421	
Pottacosis				1		1			1
Rabies, human	11	8	16	11	10	56	32	862	
Relapsing fever	17	4	9	3	6	39	5	504	
Rheumatic fever									
Rocky Mountain spotted fever	182	199	230	239	333	1,183	548	9,350	
Scarlet fever									
Septic sore throat, epidemic									1
Smallpox (variole)									20
Syphilis	508	469	494	509	510	2,490	1,997	25,305	
Tetanus	2	1	1		3	7			65
Trachoma				1	2	4			73
Trichinosis		1	1	1		3			38
Tuberculosis, pulmonary	171	154	210	177	263	975	559	7,550	
Tuberculosis, other forms	10	15	9	13	36	83	24	487	
Tularemia					1	1			4
Typhoid fever	4	2	3	2	3	14	12	245	
Typhus fever	1	1	4	1	2	9		36	
Undulant fever (Brucellosis)	10	4	4	3	7	28	22	295	
Whooping cough (Pertussis)	119	93	135	111	157	615	720	4,468	
Yellow fever									
							14,821		234,029

Note: Military cases, if any, not included.

Just what is it that America stands for? If she stands for one thing more than another, it is for the sovereignty of self-governing people, and her example, her assistance, her encouragement, has thrilled two continents in this western world with all those fine impulses which have built up human liberty on both sides of the water. She stands, therefore, as an example of independence, as an example of free institutions, and as an example of disinterested international action in the main tenets of justice.—Woodrow Wilson.

Warner G. Rice,
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